# State of New Hampshire Sustainable Resource Management

State Government Energy Committee Meeting
January 8th, 2021

**Amy Farnum, Recycling Administrator**

**NH Department of Administrative Services**

**RSA 9-C, entitled *State Government Waste Reduction, Recycling, and Recycled Products Purchase,* may be considered parallel to energy consumption reduction goals.**

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- **Enacted in 2009**
- **Established parameters for State Agencies**
- **“Reducing waste, reusing resources, recycling, and purchase of recycled content products”**
- **Conserve natural resources such as energy**
- **Aligns with building and fleet efforts to reduce the State’s energy footprint because it offers additional depth for energy consumption resulting from operations.**

# An Added Layer of Consideration for Energy Consumption


Motivation to highlight the State's material resource management in alignment with energy reduction goals reflects opportunities and threats associated with the production, movement, and disposal of goods used by the State.

***In 2019, the industrial sector accounted for 35% of total U.S. end-use energy consumption and 32% of total U.S. energy consumption.***

https://www.eia.gov/energyexplained/use-of-energy/industry.php

**Sustainable Materials Management**

Minimizing material and energy use throughout the life cycle of products (EPA)

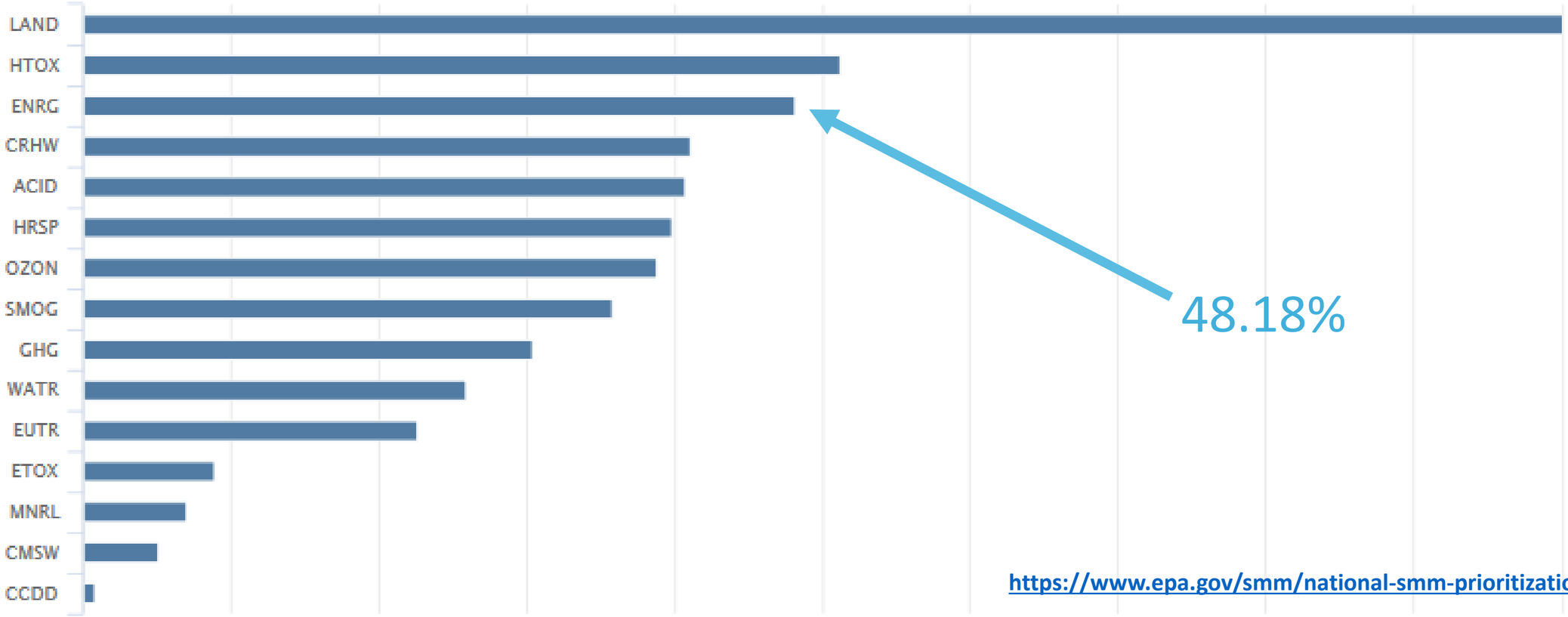
# Examine: Paper

What's this?

Environmental Profile | Supply Chain / Operations | Impactful Purchases | Supply Chain Hotspots

Back to Heatmap

What issues might be potentially significant for this good or service? The Environmental Profile below shows the issues potentially associated with this good or service from high to low significance. Level of significance is based on a good or service's percent contribution to overall issue in the US.




https://www.epa.gov/smm/national-smm-prioritization-tool#

# Slide Snapshot

## SUSTAINABLE MATERIALS MANAGEMENT: Overview 16

***Energy consumption is inherent to the life cycle of products.***

The Environmental Protection Agency (EPA) terminology ***sustainable materials management**** (SMM) refers to a holistic approach to minimizing material and energy use throughout the life cycle of products. Motivation to highlight the State's material resource management in alignment with energy reduction goals reflects opportunities and threats associated with the production, movement, and disposal of goods used by the State. Although the State's energy consumption is largely indirect in relation to the commodities procured for operations, such a perspective should be considered; supplies and equipment hold a significant energy footprint.

**The Story of a Product**

EXTRACTION & MANUFACTURING
x PACKAGING & TRANSPORT
x END-OF-LIFE DISPOSAL
= Energy Use

State enterprises require many resources to maintain operations for buildings and fleet. As an example, agencies procure binders, file folders, and other items for records and record-keeping in State offices; state vehicles need replacement parts like tires, spark plugs, and filters over time. Considering the life cycle for one of these example items serves to illustrate not only the materials inherent to an item, but also the complexity of its overall energy footprint. Binders, a common office supply utilized statewide, are typically comprised of trees (paperboard), petroleum (plastic), and metals (holding structure of binder). The industrial sector consumes energy when the trees, petroleum, and metals are extracted from the environment, and for converting those materials into a useable substance for the product (i.e., the smelting of iron into steel). That energy consumption is repeated for associated packaging of the product. Energy is then utilized to manufacture the product itself, and in moving groups of the product by ship, plane, train, and automobile to end consumers like the State of New Hampshire. Although much of the energy footprint of goods used by the State lies predominantly outside the State's border, there are direct implications for the movement of resources by State staff, as well as end-of-life disposal within the state.

* For more information on Sustainable Materials Management (SMM): https://www.epa.gov/smm

## SUSTAINABLE MATERIAL MANAGEMENT: 17

**RSA 9-C, entitled *State Government Waste Reduction, Recycling, and Recycled Products Purchase,* may be considered parallel to energy consumption reduction goals.**

SA 9-C established parameters for State Agencies in "reducing
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erving natural resources such as energy. This legislation aligns
et efforts to reduce the State's energy footprint because it offers
epth for energy consumption resulting from operations.

ps://www.gencourt.state.nh.us/rsa/html/I/9-C/9-C-mrg.htm

## SUSTAINABLE MATERIALS MANAGEMENT: Reduce & Reuse 18

**REDUCE**

The most immediate pathway to lowering the State's energy footprint, including indirect energy inherent to the product life cycle, is simply to avoid consumption in the first place by "using less". However, other strategies put forth by RSA 9-C provide additional opportunity for identifying areas of improvement.

**REUSE**

Once goods have been purchased, utilizing those to the true end-of-life addresses energy consumption by avoiding the stages of extraction, manufacturing, packaging, transportation, and disposal. It is important to stress that material resource avoidance holds economic benefit for the State in addition to energy avoidance. In FY2020, a program was launched in collaboration with State Surplus for centralizing office items such as the previous example product, binders. Evidence had emerged that, under pressure of moves, space constraint, and other factors, "still usable" items were often processed to the solid waste or recycling streams or left for years in storage. Purchasing new office supplies for one area of government when another area holds usable products is wasteful. During the pilot phase, in the last quarter of FY2020, approximately $5,000 in cost avoidance of purchases was realized. An opportunity exists to add landfill costs avoided to the valuation.

**Table 2: Example of Economic Benefit**

The table illustrates potential value held in inventory for just one in thousands of collected items. The inventory list is available at https://das.nh.gov/recycle/docs/inventory-list.pdf

| Size | Cost Per Item* | Number on Hand | Total New Value |
|---|---|---|---|
| 0.5" | $2.54 | 20 | $50.80 |
| 1" | $2.04 | 6 | $12.24 |
| 1.5" | $3.76 | 155 | $582.80 |
| 2" | $4.15 | 114 | $473.10 |
| 2.5" | $5.43 | 205 | $1,113.15 |
| 3" | $6.67 | 107 | $713.69 |
| 3.5" | $6.98 | 64 | $446.72 |
| 4" | $7.19 | 32 | $230.08 |
| 4.5" | $8.26 | 19 | $156.94 |
| | | 702 | $3,779.52 |

* Price at time of report as researched through office supply contracted vendor

## SUSTAINABLE MATERIALS MANAGEMENT: Recycle & Reclaim 19

**RECYCLE**

Many studies have been conducted by various government, industry, and academic establishments regarding energy saved by utilizing recycled content material in products and packaging versus sourcing virgin raw materials. Recycling saves energy by avoiding the extraction of raw materials and the more energy-intensive processes involved with transformation of those.

***Recycling one ton of office paper saves enough energy to power the average American home for six months**.***

Producing goods with reclaimed rather than virgin raw materials uses significantly less energy, thus reducing the overall energy footprint. Another example of a product used widely in State operations is office paper. For general resource consumption avoidance, the U.S. Energy Information Administration indicates that one ton of paper *made from* recycled paper saves 17 trees and uses 50% less water*. The image at left illustrates the size of a one-ton bale of recycled office paper (multiple bales in the photo). Other resource avoidance data from the EPA shows that recycling one ton of office paper saves 7,000 gal
greenhouse gas
RSA 9-C:10 req
in uncoated prin

**RECLAIM**

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the collected re
STATS FROM M

* https://www.eia.gc
** https://archive.ep

## SUSTAINABLE MATERIALS MANAGEMENT: Moving Forward 20

Given the focus for energy consumption in material resource management is new for FY2020, thus far deliberations have remained largely abstract. Study of EPA tools for life cycle analysis, including categories for data collection and evaluation, were conducted for this report. Moving forward, the intention is to target approaches for quantifying the energy savings for sustainable materials management, as well as launch two new initiatives for reducing waste and engaging in sustainable procurement management. Three primary goals and three associated objectives have been identified for work in FY2021 as shown below.

**FY2021 GOAL ONE**

Expand the framework for data collection and analysis across the four core areas of sustainable materials management

**FY2021 GOAL TWO**

Develop a plan for conducting waste and recycling audits with agencies to strengthen waste stream insight to inform reduce and reuse initiatives

**FY2021 GOAL THREE**

Create a database of products available with recycled content products in conjunction with statewide contract vendors for reference in purchasing

**Objectives for FY2021 material resource management progress will be:**

- Developing a set of metrics
- Strengthening agency product lifecycle analysis partnerships
- Guiding the purchase behavior at an agency and division level

# How This Focus is Being Incorporated

## REDUCE & REUSE

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## RECYCLE AND RECLAIM

*Recycling one ton of office paper saves enough energy to power the average American home for six months.*

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